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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,538	04/15/2005	Bernard Harry Stark	S114.12-0003	1412
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/531,538

Applicant(s)

STARK, BERNARD HARRY

Examiner

WASEEM MOORAD

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-30 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 15 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-85/86)
Paper No(s)/Mail Date 4/15/05
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
5) ☐ Notice of Inventor's Patent Application
6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-12, 17, 22-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stark (WO 02/42838 A1) in view of Hunter et al. (US 6,137,933).

Regarding Claim 1, Stark teaches a visual display screen arrangement for displaying an image, comprising: image display means having a display area; and a translucent cover member arranged to cover the display area and having a first cover member edge, the display area having an edge extending towards but not as far as the said first cover member edge (Abstract, page 6, lines 17-31), the cover member providing a local magnification defined as the ratio of the apparent magnitude of an area A of the display area, as viewed through the cover member at a particular angle of incidence, to the actual magnitude of that area A within the display area (Figures 3, 10 and 11); the cover member having:

(a) a generally planar portion covering at least a part of the display area and being arranged to transmit parallel rays of light emanating from different locations across the display area such that they are bent by substantially the same angle when

viewed externally of the arrangement and wherein the local magnification is substantially unity (Figure 3); and

(b) an edge portion which includes the first cover member edge, the said edge portion having a light bending region arranged to bend rays of light emanating from different locations at or adjacent to the edge of the display area such that the said display area, as viewed externally of the arrangement and through the edge portion, appears to extend substantially as far as the edge of the cover member (Figure 3, page 8, lines 6-20),

characterized in that the light bending region of the edge portion provides a local magnification which varies with distance from the cover member edge (Figures 3, 10, and 11)

Stark is silent regarding wherein the light bending region has a graded magnification adapted to minimize the rate of change of local magnification between the generally planar portion of the cover member and the first cover member edge.

Hunter et al. teaches wherein the light bending region has a graded magnification adapted to minimize the rate of change of local magnification between the generally planar portion of the cover member and the first cover member edge (column 10, lines 29-53; wherein the graded lens corrects the magnifications and focuses the output).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stark with the teachings of Hunter et al. by providing graded magnification in the light bending region so that the output can be magnified and focused properly, reducing the amount of distortion.

Regarding Claim 2, it is analyzed with respect to the analysis of Claim 1. Hunter et al. further teaches wherein the light bending region includes a graded refractive index and/or a non-constant curvature so as to provide for a graded magnification of an area within the display area (column 10, lines 29-53; where the graded refractive index of the lens provides the graded magnification).

Regarding Claim 3, it is analyzed with respect to the analysis of Claim 1. Stark further teaches wherein the light bending region comprises a curved section, the radius of curvature thereof being non-constant so as to minimize the said rate of change of local magnification (Figure 3, 10-11, and 13; where when viewed with the combination of Stark, in view of Hunter et al., Stark teaches the curvature as being non-constant as seen in the figures, and wherein the inclusion of Hunter et al. brings about the decrease in the rate of change in local magnification due to this configuration). Furthermore, Hunter et al. teaches wherein the light bending region comprises a curved section, the radius of the curvature thereof being non-constant so as to minimize the said rate of change of local magnification (column 10, lines 29-53; Figure 12)

Regarding Claim 4, it is analyzed with respect to the analysis of Claim 1. Hunter further teaches wherein the light bending region has a graded refractive index so as to minimize the rate of change of local magnification (column 10, lines 29-53; where the graded refractive index of the lens provides the graded magnification)

Regarding Claim 5, it is analyzed with respect to the analysis of Claim 1. Hunter et al. teaches of a cylindrical lens having a graded magnification.

Stark, in view of Hunter et al., is silent regarding a segmented lens having a graded magnification.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stark, in view of Hunter et al. by having a segmented lens instead of the cylindrical lens as an alternative design choice that uses less area and is cost-efficient.

Regarding Claim 6, it is analyzed with respect to the analysis of Claim 1. Stark further teaches wherein the cover member further includes a second cover member edge which is generally orthogonal to the said first cover member edge, the cover member also having a further edge portion including a second light bending region and the said second cover member edge, wherein the second light bending region of the further edge portion also provides a local magnification which varies with distance from the second cover member edge (column 6, lines 17-31; claim 2; Figures 10-13; where the local magnification varies with distance as one goes more towards the edge as described in columns 14-15, lines 28-37 to 1-7)

Stark is silent regarding wherein the second light bending region has a graded magnification adapted to minimize the rate of change of local magnification between the generally planar portion of the cover member and the second cover member edge.

Hunter et al. teaches wherein the light bending region has a graded magnification adapted to minimize the rate of change of local magnification between the generally planar portion of the cover member and the cover member edge (column 10, lines 29-53; wherein the graded lens corrects the magnifications and focuses the output).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stark with the teachings of Hunter et al. by providing graded magnification in the second light bending region so that the output can be magnified and focused properly, reducing the amount of distortion.

Regarding Claim 7, it is analyzed with respect to the analysis of Claim 6. Stark further teaches wherein the translucent cover member has further sides at least one of which has a cover member edge portion containing a further light bending region and a further cover member edge (pages 6-7; lines 32-37 to lines 1-5; the visual display area consists of where two or more screen members meet at a joining edge; thereby making it such that when a third screen member is added to the arrangement, it will further contain a light bending region and an edge to properly configure itself to the other two screen members).

Stark does not teach wherein the further light bending region has a graded magnification so as to minimize the rate of change of local magnification between the planar portion of the cover member and the cover member edge of that side.

Hunter et al. teaches wherein the light bending region has a graded magnification adapted to minimize the rate of change of local magnification between the generally planar portion of the cover member and the cover member edge (column 10, lines 29-53; wherein the graded lens corrects the magnifications and focuses the output).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stark with the teachings of Hunter et al. by providing graded magnification in the light bending region so that the output can be magnified and focused properly, reducing the amount of distortion.

Regarding Claim 8, it is analyzed with respect to the analysis of Claim 1. Stark further teaches wherein the image display means is arranged to display an image which is compressed adjacent to or near the display edge (column 11, lines 32-37; claim 5)

Regarding Claim 9, it is analyzed with respect to the analysis of Claim 8. Stark further teaches wherein the image display means is arranged to generate a graded compression of the image (page 13, lines 27-36).

Regarding Claim 10, it is analyzed with respect to the analysis of Claim 9. Stark further teaches wherein the graded compression of the image complements the graded magnification provided by the edge portion of the cover member such that an image, as

viewed externally of the arrangement, appears substantially undistorted (page 13, lines 27-36)

Regarding Claim 11, it is analyzed with respect to the analysis of Claim 8. Stark further teaches compression of the pixels is performed electronically (page 5, lines 4-6).

Stark is silent regarding a processor arranged to process an image to be displayed within the display area so as to provide compression thereof.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stark, in view of Hunter et al. so to have the electronic compression operation of the pixels to be performed by a processor as an alternative design choice.

Regarding Claim 12, it is analyzed with respect to the analysis of Claim 8. Stack, in view of Hunter et al. further teaches wherein the image display area comprises a plurality of pixels, the area covered by a pixel in a first region (Stack: Figure 3, element 144) adjacent to the said edge of the display area being different to the area covered by a pixel in a second region (Stack: Figure 3, element 142) beneath the generally planar portion of the cover member, and wherein the magnitude of the area of the pixels is graded between the said first and second regions (Hunter et al.: column 10, lines 29-53; wherein the graded lens is placed in between the regions to provide graded magnification in that area).

Regarding Claim 17, it is analyzed with respect to the analysis of Claim 1. Hunter et al. further teaches light coupling means adapted to couple light emanating from the image display area (Figure 1, elements 12, 14; columns 5-6, lines 66-67 to lines 1-18).

Stark, in view of Hunter et al., is silent regarding the light coupling means arranged adjacent the edge of the cover member and wherein the light is coupled that emanates through the edge of the cover member.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stark, in view of Hunter et al., such that the light coupling means is arranged adjacent the edge of the cover member and wherein the light is coupled that emanates through the edge of the cover member so that light can be properly sent through the full display.

Regarding Claim 22, it is analyzed with respect to the analysis of Claim 1. Stark further teaches second image display means having a second display area; and

a second translucent cover member arranged to cover the second display area, the second cover member having a first cover member edge locatable in use adjacent the first cover member edge of the first cover member, the second display area having an edge extending towards but not as far as the said first cover member edge of the second cover member, the second cover member providing a local magnification, defined as the ratio of the apparent magnitude of an area A' of the second display area as viewed through the second cover member at a particular angle of

incidence, to the actual magnitude of that area A' within the second display area (column 6, lines 17-31; claim 2; Figures 10-13; columns 14-15, lines 25-37 to 1-7);

the second cover member having:

(a) a generally planar portion covering at least a part of the second display area and being arranged to transmit parallel rays of light emanating from different locations across the second display area such that they are bent by substantially the same angle when viewed externally of the arrangement (column 6, lines 17-31; claim 2; Figures 10-13); and

(b) an edge portion which includes the first cover member edge, the edge portion of the second cover member having a light bending region arranged to bend rays of light emanating from different locations at or adjacent to the edge of the second display area such that the second display area, as viewed externally of the arrangement and through the edge portion of the second cover member, appears to extend substantially as far as the first cover member edge thereof (column 6, lines 17-31; claim 2; Figures 10-13),

wherein the light bending region of the edge portion of the second cover member also provides a local magnification which varies with distance from the cover member edge (column 6, lines 17-31; claim 2; Figures 10-13; where as one goes further to the edge, the local magnification varies);

Stark is silent regarding wherein the second light bending region has a graded magnification adapted to minimize the rate of change of local magnification between the generally planar portion of the second cover member and the first cover member edge.

Hunter et al. teaches wherein the light bending region has a graded magnification adapted to minimize the rate of change of local magnification between the generally planar portion of the cover member and the cover member edge (column 10, lines 29-53; wherein the graded lens corrects the magnifications and focuses the output).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stark with the teachings of Hunter et al. by providing graded magnification in the second light bending region so that the output can be magnified and focused properly, reducing the amount of distortion.

Regarding Claim 23, it is analyzed with respect to the analysis of Claim 22. Stark further teaches wherein the arrangement is arranged to generate at least a part of an image both within the first display area and adjacent the first cover member edge and also within the second display area, adjacent the first cover member edge of the second cover member (Figure 14; where the image covers across both screens)

Regarding Claim 24, it is analyzed with respect to the analysis of Claim 22. Stark further teaches wherein the second image display means and the second translucent cover member are moveable relative to the first image display means and the first translucent cover member, between a first, open position wherein the edges of the cover member edge portions of the first and second cover members abut one another, and a second, closed position wherein the said edges of each cover member edge

portion do not abut one another (Figure 14, where the displays have the capability of opening and closing, as such in a laptop or mobile telephone).

Regarding Claim 25, it is analyzed with respect to the analysis of Claim 22. Stark further teaches wherein the first and second light bending regions have graded magnifications further comprises respect first and second magnification transition portions located towards the first and second cover member edges respectively, the first and second magnification transition portions both providing a substantially constant and equal local magnification (Figure 13; where both the screens provide the same local magnification ratios), such that an image displayed by the first display means appears substantially undistorted across a junction there between as a user moves away from a viewing position generally above the junction to one side (Figures 8-11; page 13, lines 27-36).

Regarding Claim 26, it is analyzed with respect to the analysis of Claim 22. Stark, in view of Hunter et al., teach wherein the first and second light bending regions having graded magnifications further comprise respective first and second magnification transition portions located towards the first and second cover member edges respectively, the first and second magnification transition portions providing a generally decreasing local magnification towards the respective first and second cover member edges, such that an image displayed by the first and second display means appears substantially undistorted across a junction there between as a user moves away from a

viewing position generally above the junction to one side (Figures 8-13; page 13, lines 27-36; where the combination of reference, Hunter et al., provides the focusing of the local magnification; leading to a minimization of the rate of change of that local magnification or a decrease in local magnification towards the respective edges)

Regarding Claim 27, it is analyzed with respect to the analysis of Claim 25. Stark further teaches wherein the first and second image display means are arranged to generate a compression of the image which corresponds to the magnification provided by the first and second light bending regions having graded magnification and respective first and second magnification transition portions (page 11, lines 32-37; page 13, lines 27-37)

Regarding Claim 28, it is analyzed with respect to the analysis of Claim 1. Stark further teaches an image display assembly comprising a plurality of visual display screen arrangements (Figure 14)

Regarding Claim 29, it is analyzed with respect to the analysis of Claim 28. Stark further teaches wherein each arrangement abuts another such arrangement as to provide a tessellated assembly (Figure 14)

Regarding Claim 30, it is analyzed with respect to the analysis of Claim 1. Stark further teaches a mobile telephone; a personal digital computer, a computer, control, or

gaming console, or other fixed or portable, single screen or multi-screen device (Figure 14)

3. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stark (WO 02/42838 A1) in view of Hunter et al. (US 6,137,933) and further in view of Strasnick et al. (US 5,528,735).

Regarding Claim 13, it is analyzed with respect to the analysis of Claim 8. Stark, in view of Hunter et al. is silent regarding an image compression adjuster, operable to alter the compression of an image in the vicinity of the edge of the image display area.

Strasnick teaches an image compression adjuster, operable to alter the compression of an image in the vicinity of the edge of the image display area (column 16, lines 55-67 to column 17, lines 1-65; column 19, lines 55-67 to column 20, lines 1-20)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stark, in view of Hunter et al., with the teachings of Strasnick et al. by having an image compression adjuster that adjusts the compression accordingly to prevent distortion.

Regarding Claim 14, it is analyzed with respect to the analysis of Claim 13. Strasnick further teaches wherein the image compression adjuster is manually operable (column 17, lines 54-58; where the user adjusts it from the preference panel)

Regarding Claim 15, it is analyzed with respect to the analysis of Claim 13. Strasnick further teaches wherein the image compression adjuster is operable under software control automatically to adjust the image compression in the vicinity of the edge of the display area (column 17, lines 59-63; where the compression is done automatically).

Regarding Claim 16, it is analyzed with respect to the analysis of Claim 15. Strasnick et al. further teaches wherein the image compression adjuster is arranged to detect the presence of text in a region adjacent the edge of the image display area, and automatically to adjust the font size and/or shape in that region so as to improve the legibility thereof (column 19, lines 55-64)

4. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stark (WO 02/42838 A1) in view of Hunter et al. (US 6,137,933) and further in view of Asakawa et al. (US 5,892,598).

Regarding Claim 17, it is analyzed with respect to the analysis of Claim 1. Stark, in view of Hunter et al. does not teach wherein the light coupling means is incorporated into the edge of the cover member and is an optical foil or a half mirror.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stark, in view of Hunter et al, to have the

light coupling means incorporated into the edge of the cover member as an alternative design choice.

Asakawa et al. teaches wherein the light coupling means is a half mirror (Figure 7, element 73).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stark, in view of Hunter et al., with the teachings of Asakawa et al. by having the light coupling means be an half mirror as an alternative design choice.

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stark (WO 02/42838 A1) in view of Hunter et al. (US 6,137,933) and further in view of Hamm (US 5,949,929).

Regarding Claim 19, it is analyzed with respect to the analysis of Claim 17. Stark, in view of Hunter et al., does not teach wherein the light coupling means is formed upon the edge of the cover member and is selected from the list comprising a gel such as an index matching gel, silicone rubber, and petroleum jelly.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stark, in view of Hunter et al, to have the light coupling means incorporated into the edge of the cover member as an alternative design choice.

Hamm teaches the light coupling means comprising an index matching gel (column 4, lines 65-66)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stark, in view of Hunter et al., with the teachings of Hamm by having the light coupling means comprising an index matching gel so to limit the loss of light.

6. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stark (WO 02/42838 A1) in view of Hunter et al. (US 6,137,933) and further in view of Bayrie et al. (US 6,888,524).

Regarding Claim 20, it is analyzed with respect to the analysis of Claim 1. Stark, in view of Hunter et al., is silent regarding a brightness detection means arranged to determine the uniformity of brightness of an image within the image display area, and brightness adjustment means to compensate for detected brightness variations within the displayed image.

Bayrie et al. teaches brightness detection means arranged to determine the uniformity of brightness of an image within the image display area, and brightness adjustment means to compensate for detected brightness variations within the displayed image (Figure 1; Abstract, column 3, lines 4-7 and 14-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stark, in view of Hunter et al.,

with the teachings of Bayrie et al. by having brightness detection and adjustment means within the display screen arrangement so to improve the image being displayed.

Regarding Claim 21, it is analyzed with respect to the analysis of Claim 20. Stark further teaches a backlight to illuminate the image display area (Figure 3, element 160). Bayrie et al. further teaches the brightness adjustment means includes a controller arranged to adjust the intensity of the backlight in dependence upon the detected brightness variations (Abstract).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. US 5,828,410: Drapeau teaches display system which involves compression at the edges and magnification in order to visualize text without distortion.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WASEEM MOORAD whose telephone number is (571)270-3436. The examiner can normally be reached on M-F 730am-4pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on 571-272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Waseem Moorad/
Examiner, Art Unit 2629

/Amr Awad/
Supervisory Patent Examiner, Art Unit 2629

09/18/08